Chesapeake Bay Program Response Template Tool

To NRC Report, *Achieving Nutrient and Sediment Reduction Goals in the Chesapeake Bay: An Evaluation of Program Strategies and Implementation*

	National Academy of Sciences National Research Council Panel's science based conclusion	CBP lead team or workgroup is responsible for implementing current or additional action(s)	Draft response by CBP partnership action(s) already being taken to address the science based conclusion	Draft response by CBP partnership on specific additional action(s) the partnership will commit to take	Indicate if the CBP partnership should not pursue this further and why
	TRACKING AND ACCOUNTING				
1	Accurate tracking of BMPs is of paramount importance because the CBP relies upon the resulting data to estimate current and future nutrient and sediment loads to the Bay.	Water Quality Goal Implementation Team with Watershed Technical Workgroup and source workgroups	• The CBP partnership is near the end of a four year effort to develop and adopt the National Environmental Information Exchange Network or NEIEN approach to exchange reported BMP data seamlessly across the seven watershed jurisdictions, an unprecedented accomplishment unmatched across the country. • The CBP partnership adopted a protocol for the review and approval of new practices' definitions, efficiencies, means for tracking and reporting and simulation within the respective Bay model. The protocol also addresses existing partnership approved practices where new scientific findings support reconsideration of the practice's efficiencies.		
2	The current accounting of BMPs is not consistent across the Bay jurisdictions. Additionally, given that some source-sector BMPs are not tracked in all jurisdictions, the current accounting cannot on the whole be viewed as accurate.	Water Quality Goal Implementation Team with Watershed Technical Workgroup and source workgroups	• Through a series of parallel activities, which will converge together over the coming year to form a more comprehensive BMP tracking, verification, and reporting system, the CBP partners are tackling the following issues through a variety of approaches: o **Agricultural data privacy constraints:** U.S. Geological Survey (USGS) has signed memoranda of understanding (MOUs) with the U.S. Department of Agriculture's (USDA) National Resources Conservation Service (NRCS) and the Farm Services Agency (FSA) to establish a federal cost-shared conservation practice data reporting system which respects producer privacy and still ensures partner access to geographic-based reporting of BMP at the scales appropriate to a variety of management and assessment objectives. o **Verification and Non-Cost Shared Practices:** The National Association of Conservation Districts (NACD) has been funded by USDA NRCS to coordinate development of data collection and verification protocols for non-cost shared agricultural conservation practices implemented in the Chesapeake Bay watershed. EPA and USDA are working directly with NACD, the state agricultural agencies, conservation districts, and the agricultural and agribusiness communities to develop and implement mechanisms for tracking and reporting verified non-cost share practices by July 2012, as committed to in the Executive Order 13508 Strategy. Lessons learned from this effort will be useful in improving tracking, verification, and reporting of both cost shared and non-cost shared practices in other source sectors. o **Double counting:** The USGS agricultural data reporting system described above is being structured to significantly reduce double counting of jointly federal/state cost shared conservation practices. As states begin to track non-cost shared agricultural practices, it will be essential for the CBP partners to develop mechanisms for identifying and removing any double counted data before data are transmitted for use in the Bay TMDL accountability system. o **Practice lifespan:** The CBP partnership has developed some initial practice-specific life spans for use in the model; that work needs to be expanded to cover the full suite of CBP approved practices used in the model. All seven watershed jurisdictions need to put in place protocols for removing practices from the shared accounting systems after the end of the agreed to lifespan.		
3	The committee was unable to determine the reliability and accuracy of the BMP data reported by the Bay jurisdictions.	Water Quality Goal Implementation Team with Watershed Technical Workgroup and source workgroups	• As described above and below, the CBP partnership is already focused on addressing several areas for continual refinement to existing BMP tracking and reporting procedures to improve the shared confidence in the BMP data: o more fully accounting for non-cost shared BMPs; o more comprehensive verification of cost shared and non-cost shared practices; o ensuring that historic data reported for use in the model do not include duplicate records, expired practices, or practices on land that has since been converted to another use. o accounting for practice lifespan in simulating pollutant reductions; o accounting for site-level variability in BMP efficiencies; o increasing access to BMP location information; and o greater consistency in BMP definitions across the partnership.	• While the input data for the CBP Watershed Model allows for a reasonable estimate of agricultural loadings to the Chesapeake Bay and the effect of conservation practices, the CBP partnership will continue to refine the model with the latest available verified data. • Convene a panel of recognized regional and national experts to help guide decisions on crediting substandard practices.	
4	The committee was not able to quantify the magnitude or the likely direction of the error introduced by BMP reorting issues.	Water Quality Goal Implementation Team with Watershed Technical Workgroup and source workgroups			
5	A consolidated regional BMP program to account for voluntary practices and increase geo-referencing of BMPs present opportunities to improve the tracking and accounting process.	Water Quality Goal Implementation Team with source workgroups	See actions described above in numbers 1-6.		

6	Targeted monitoring programs in representative urban and agricultural watersheds and subwatersheds would provide valuable data to refine BMP efficiency estimates particularly at the watershed scale, and thereby improve Watershed Model predictions.	Science, Technical Analysis and Reporting Team with Nontidal Water Quality Monitoring Workgroup	• With leadership by USGS and NRCS, the CBP partnership has already invested shared monitoring resources in establishing monitoring program within small watersheds targeted for intensive conservation practice implementation. • These small watershed monitoring programs are being designed and implemented following guidelines developed through workshops sponsored by the CBP partnership's Scientific and Technical Advisory Committee (STAC).	As funding becomes available, the partners have a prioritized list of the next set of targeted small watershed for monitoring and assessment.	
7	Additional guidance from the EPA on the optimal extent of field verification of practices in relation to expected benefits would improve tracking and accounting of both cost-shared and non-cost shared practices.	Water Quality Goal Implementation Team with Watershed Technical Workgroup and source workgroups	The National Association of Conservation Districts (NACD) has been funded by USDA NRCS to coordinate development of data collection and verification protocols for non-cost shared agricultural conservation practices implemented in the Chesapeake Bay watershed. EPA and USDA are working directly with NACD, the state agricultural agencies, conservation districts, and the agricultural and agribusiness communities to develop and implement mechanisms for tracking and reporting verified non-cost share practices by July 2012, as committed to in the Executive Order 13508 Strategy. Lessons learned from this effort will be useful in improving tracking, verification, and reporting of both cost shared and non-cost shared practices in other source sectors.	• Based on the ongoing work by the NACD, the CBP partnership (not just EPA) will agree on how to best carry out verification of implemented practices, initially focused on agricultural conservation practices and then extending to BMPs implemented to reduce loads from other pollutant source sectors. • Convene a panel of recognized regional and national experts to help guide decisions on crediting substandard practices.	
8	Electronic tracking and data transfer systems are likely to improve the quality of reporting and reduce the jurisdictions' tracking and accounting burden but may currently be contributing to delayed assessment of implementation progress.	Water Quality Goal Implementation Team with Watershed Technical Workgroup and source workgroups	The CBP partnership is near the end of a four year effort to develop and adopt the National Environmental Information Exchange Network or NEIEN approach to exchange reported BMP data seamlessly across the seven watershed jurisdictions, an unprecedented accomplishment unmatched across the country.	The partnership will complete the transition NEIEN-based BMP network exchange and work to ensure the exchange network results in more rapid access and, therefore, more timely assessment of tracked, verified and reported BMPs.	
			TWO YEAR MILESTONES		
9	The two-year milestone strategy commits the states to tangible, near-term implementation goals and improves accountability and, therefore, represents an improvement upon past CBP long-term strategies. However, the strategy, in and of itself, does not guarantee that implementation goals will be met, and consequences for nonattainment remain unclear.	Water Quality Goal Implementation Team's Milestones Workgroup	Chesapeake Bay accountability framework, officially put in place with publication of the Chesapeake Bay TMDL on December 29, 2010, is composed of Watershed Implementation Plans (WIPs), two-year milestones, tracking and assessment of progress meeting Bay TMDL allocations, and federal actions, all of which provide greater assurance for achievement and maintenance of the Bay TMDL allocations. EPA has shared the *Evaluation of Bay Jurisdictions' 2009-2011 Milestones* memorandum and the *Guide for Chesapeake Bay Water Quality Two-year Milestones* with the jurisdictional partners.	The partnership will continue forward with the two-year milestone process as described within the Evaluation of Bay Jurisdictions' 2009-2011 Milestones memorandum and the *Guide for Chesapeake Bay Water Quality Two-year Milestones* .	
10	CBP jurisdictions reported mixed progress toward their first two-year milestone goals. However, data were insufficient to meaningfully evaluate implementation or anticipated load reduction progress relative to the goals.	Water Quality Goal Implementation Team's Milestones Workgroup	The CBP partnership is near the end of a four year effort to develop and adopt the National Environmental Information Exchange Network or NEIEN approach to exchange reported BMP data seamlessly across the seven watershed jurisdictions. EPA has shared the *Evaluation of Bay Jurisdictions' 2009-2011 Milestones* memorandum with the jursidictional partners so that everyone is clear on the planned evaluation.	The seven Bay watershed jurisdictions will report to the public on interim progress under their 2009-2011 milestones at the upcoming Chesapeake Executive Council. The partnership will complete the transition NEIEN-based BMP network exchange and work to ensure the exchange network results in more rapid access and, therefore, more timely assessment of tracked, verified and reported BMPs. The partnership will continue forward with the two-year milestone process as described within the Evaluation of Bay Jurisdictions' 2009-2011 Milestones memorandum and the Guide for Chesapeake Bay Water Quality Two-year Milestones.	
11	The first two-year milestone goals will likely be the easiest to achieve.	Water Quality Goal Implementation Team's Milestones Workgroup			The CBP partnership does not agree with this finding—the "low hanging fruit" described within the report has long been picked from the tree over the course of the 28 year partnership.
			ADAPTIVE MANAGEMENT		

12	Neither the EPA nor the Bay jurisdictions exhibit a clear understanding of adaptive management and how it might be applied in pursuit of water quality goals.	Enhance Partnership, Leadership Goal Implementation Team	The CBP partnership adopted a new management structure in 2009 as part of a larger effort to building adaptive management into the partnership's shared decision making process. The CBP partnership released ChesapekeStat in 2010 to provide for a systematic process of analyzing information to continually assess progress towards goals and adapt strategies when needed and a public website that promotes improved accountability through transparency by sharing information on activities, funding and goals. The Federal Leadership Committee for the Chespeake Bay published the *Strategy for Protecting and Restoring the Chesapeake Bay Watershed* in May 2010, under Executive Order 13508, making specific commitments to undertake adaptive management within the partnership.		
13	Successful application of adaptive management in the CBP requires careful assessment of uncertainties relevant to decision making, but the EPA and Bay jurisdictions have not fully analyzed uncertainties inherent in nutrient and sediment reduction efforts and water quality outcomes.	Enhance Partnership, Leadership Goal Implementation Team			
14	Targeted monitoring efforts by the states and the CBP will be required to support adaptive management.	Enhance Partnership, Leadership Goal Implementation Team	In November 2009, the partnership's Management Board adopted the findings and recommendations coming out of the STAC led reevaluation of the partnership's water quality-focused monitoring networks. The work of the Monitoring Realignment Action Team built on a series of STAC sponsored monitoring and analysis workshops and reviews which provided the partnership with a solid, scientific basis for targeting monitoring efforts to better address management needs.		
15	Additional federal actions are needed to fully support adaptive management in the CBP.	Enhance Partnership, Leadership Goal Implementation Team	Over the past three years, EPA has been communicating frequently and extensively about the accountability framework now in place, working to clarify expectations, spell out evaluation processes, and support adaptation to new information. The Federal Leadership Committee for the Chespeake Bay published the Strategy for Protecting and Restoring the Chesapeake Bay Watershed in May 2010, under Executive Order 13508, making specific commitments to undertake adaptive management within the partnership.		
16	Without sufficient flexibility of the regulatory and organizational structure within which CBP nutrient and sediment reduction efforts are undertaken, adaptive management may be problematic.	Enhance Partnership, Leadership Goal Implementation Team	The Chesapeake Bay TMDL and the adopted accountability framework, published on December 29, 2010, built in the following adaptability: o Three separate opportunities to develop and refine the Bay TMDL allocations and the jurisdictions' watershed implementation plans—2010, 2012, and 2017—through a phased process on the way to 2025; o Two-year milestones providing multiple opportunities for adaptation; o Jurisdictions and local partners' development of local load targets at the appropriate scales within each jurisdiction as part of the Phase II Watershed Implementation Plans; o Continued publication of addenda to the original 2003 Bay water quality criteria and tidal waters designated uses documents (10 published by EPA to date on behalf of the partnership); and o Delaware, District of Columbia, Maryland, and Virginia's continued commitment to adopt partnership approved/EPA published refinements to the Bay water quality criteria, designated uses, and criteria assessment procedures into their jurisdiction's water quality standards regulations (the most recent of which occurred in 2010).		
			STRATEGIES FOR MEETING THE GOALS		

17	Success in meeting CBP goals will require careful attention to the consequences of future population levels, development patterns, agricultural production systems, and changing climate dynamics in the Bay Watershed.	Water Quality Goal Implementation Team	The Chesapeake Bay TMDL was established using a 2010 land use, and states are expected to offset any new or increased discharges for which an allocation was not established in the TMDL. EPA Region 3 is in the process of auditing states' trading and offset programs in 2011 to ensure they meet EPA's expectations as set forth in Appendix S of the TMDL. EPA CBPO is working with USGS and USDA to develop projections of future conditions out to 2025. o USGS made projections of future population and septic systems available to jurisdictions in February 2011 for consideration in their Phase II WIPs. o USGS will be hosting an "alternative futures" conference in 2011. o EPA is working with USDA to develop projections for the future number and location of animals in the Chesapeake Bay watershed. This will affect land uses, nutrient imbalances, and nutrient and sediment loads delivered to the Bay. Climate change: o The Strategy to Protect and Restore the Chesapeake Bay Watershed, developed in response to Executive Order 13508, directs for EPA to incorporate the effects of climate change into the Chesapeake Bay TMDL by 2017. o As stated in Section 5.11 of the Bay TMDL, the potential effects of future climate change were accounted for in the Bay TMDL allocations that EPA established in December 2010 based on a preliminary assessment of climate change impacts in the Chesapeake Bay. o Also as stated in Section 5.11 of the Bay TMDL, CBPO is assessing the effects of climate change on nutrient and sediment loads delivered to the Bay, as well as attainment of water quality standards in the Bay, as part of its analysis of the full suite of models in advance of the Phase III WIPs in 2017.		
18	Helping the public understand lag times and uncertainties associated with water quality improvements and developing program strategies to account for them are vital to sustaining public support for the program, especially if near-term Bay response does not meet expectations.	Water Quality Goal Implementation Team/Communications Workgroup	EPA has committed FY2011 funds as part of a two year effort to implement recommendations of the Chesapeake Bay Program Monitoring Realignment Action Team for expansion of the non-tidal water quality monitoring network across the six states and the District. The CBP's Scientific and Technical Analysis and Reporting (STAR) Team has the lead for the partnership for better understanding lag times, identifying and quantifying the uncertainties associated with water quality improvements. On April 13, 2011, the CBP STAR Team and CBP Water-Quality Goal Team (WQGIT) co-hosted the "An Integrated Approach for Communicating and Monitoring Progress toward the Chesapeake TMDL" meeting. Meeting recommendations and next steps will be set game plan for how the partnership will proceed from here.	Implement the recommendations and next steps coming out of the April 2011 "An Integrated Approach for Communicating and Monitoring Progress toward the Chesapeake TMDL" meeting.	
19	Ag: Improved and innovative manure management.	Water Quality Goal Implementation Team's Agricultural Workgroup	• In Phase I WIPs, states identified many strategies to improve manure management, including application, transport, alternative uses and feed management. o Notably, Pennsylvania committed to innovation in the field of advanced manure to energy technologies. PA committed state funds for this effort and called for USDA and other state agencies to do the same. o As part of the Phase II process, EPA committed to work with Pennsylvania to agree upon credit that State should receive for these technologies. • In its Phase I WIP, Virginia placed all AFO loads in the WLA to signal that more facilities could be subject to NPDES permits. Virginia also included a plan for addressing water quality concerns associated with unpermitted AFOs (specifically dairies). • In its December 29, 2009 letter to the PSC, EPA outlined 8 federal actions that it would take to ensure that nutrient and sediment reduction efforts continue on schedule to meet the Partnership's goal of all practices in place by 2025. One such action is expanding the universe of sources, including animal feeding operations, subject to NPDES permits. • When establishing the TMDL, EPA applied a "backstop allocation adjustment" to CAFO WLAs in West Virginia. EPA shifted 75% of the AFOs not currently identified as being subject to CAFO permits from the LA to the WLA to indicate that EPA is prepared to designate additional AFOs as CAFOs if WV falls behind implementing its agricultural commitments. The backstop adjustment in the TMDL does not designate these operations as being subject to CAFO permits; a formal designation action by the state or EPA would be necessary. • In 2011, EPA is reviewing the state technical standards for nutrient management. Review will include timing and rate of application, as well as assessment of whether technical standards will adequately reduce nutrient transport off of CAFOs so as to be protective of water quality.		

20	Ag: Incentive-based approaches and alternative regulatory models.	Water Quality Goal Implementation Team's Agricultural Workgroup	• In their Phase I WIPs, several states proposed strategies to increase agricultural BMPs without command-and-control regulations. E.g., Virginia's Resource Management Plans. • Many Phase I WIPs (Virginia, Delaware, and Maryland) identified contingencies including mandatory requirements if sufficient increases in voluntary BMPs were not achieved by 2013. • EPA will be analyzing the costs and benefits associated with meeting water quality standards in the Chesapeake Bay in 2011 and 2012.		
21	Urban: Regulatory models that address stormwater, growth and development, and residential fertilizer use.	Water Quality Goal Implementation Team's Stormwater Workgroup	• EPA agrees that restrictions on residential fertilizer application are a cost-effective mechanism to reduce nutrient loads. EPA encourages these restrictions, and is pleased that multiple states included them in their Phase I WIPs. E.g.: New York passed fertilizer legislation in July 2010. Virginia passed fertilizer legislation in 2011. • EPA credited nutrient reductions to states that included fertilizer restrictions in their Phase I WIPs. • The Bay TMDL is established using a 2010 land use, and states are expected to offset any new or increased discharges for which an allocation was not established. • EPA Region 3 will be auditing states' trading and offset programs in 2011 to ensure they meet EPA's expectations as set forth in Appendix S of the TMDL.	• Through the Phase II WIPs, EPA expects that communities will work with states to develop and implement strategies to reduce nitrogen, phosphorus and sediment reductions to the Bay. Such strategies could include land-use regulations or ordinances that limit new or increased loads delivered to the Bay.	
22	Urban: Enhanced individual responsibilities.	Water Quality Goal Implementation Team's Stormwater Workgroup	• Many states assumed that individual actions would be one way to reduce loads from urban runoff and onsite septic systems, and identified education and outreach as an important mechanism to facilitate such voluntary actions. • EPA will give states credit for voluntary actions if the state can appropriately report and verify these practices to EPA.		
23	Additional air pollution controls.	Water Quality Goal Implementation Team		• National programs are the most effective mechanism to reduce NOx emissions and deposition to the Chesapeake Bay and its watershed given that 50% of the NOx deposition in the watershed comes from sources outside the watershed. • EPA is in the process of finalizing a more stringent national ozone standard that will decrease NOx emissions and deposition to Chesapeake Bay and its watershed. If this standard is finalized before the Phase II WIPs are due to EPA and if it is at least as protective as 0.070 ppm (range under consideration is 0.060 – 0.070 ppm), EPA will credit the states for the decreased nitrogen deposition in the watershed. • There are no national air quality standards for ammonia. However, EPA encourages states to develop ammonia emissions controls and has provided guidance to the states and the District of Columbia for how they may credit any ammonia emissions reductions in their WIPs.	
24	Innovative funding models will be needed to address the expected costs of meeting Bay water quality goals.	Water Quality Goal Implementation Team	• EPA modified its FY 2011 Chesapeake Bay Implementation Grant and Chesapeake Bay Regulatory and Accountability Program Grant guidance to increase the targeting of EPA funds for use on practices and in subwatersheds that would have the greatest effect on reducing nutrient and sediment loads to the Chesapeake Bay. • Through its COAST tool, EPA provided information to states and USDA for targeting agricultural practices in sub-watersheds where they would have the greatest impact on reducing nutrient loads to the Bay. • EPA is adding information such as USGS SPARROW maps to ChesapeakeStat in order to help partners target nutrient and sediment reduction efforts. • EPA agrees with states and stakeholders that properly designed trading and offset programs have the opportunity to reduce implementation costs. o Many states, most notably Virginia, included plans to develop and enhance their trading programs in their Phase I WIPs as a mechanism to cost-effectively meet nutrient and sediment allocations in the TMDL. o EPA Region 3 will be auditing states' trading and offset programs in 2011 to ensure they meet EPA's expectations as set forth in Appendix S of the TMDL. • EPA encourages stormwater utilities, and is pleased that MD included a strategy to create stormwater utilities in its Phase I WIP.	• EPA may consider further targeting for its FY 2012 grant guidance. • Subject to its final FY 2011 Operating Budget and future budgets, EPA will be providing additional resources to improve the Watershed's non-tidal water quality monitoring network.	

25	Establishing a Chesapeake Bay modeling laboratory would ensure that the CBP would have access to a suite of models that are state-of-the-art and could be used to build credibility with the scientific, engineering and management communities.	Science, Technical Analysis and Reporting Team's Modeling Workgroup	• The Chesapeake Bay Program has long-embraced open source, community-based models. CBP models and modeling information are posted by the Chesapeake Community Modeling Program, which is developed and maintained by a consortium of universities and federal agencies. • This spring, EPA and USDA will finalize a work plan outlining activities to further collaborate on respective modeling efforts, with particular emphasis on the Chesapeake Bay Program Partnership's Watershed Model (CBP Watershed Model) and the USDA Conservation Effects Assessment Project (CEAP model). NRCS Chief White announced the development of this work plan at the March 16th hearing in front of the U.S. House of Representatives Committee on Agriculture's Subcommittee on Conservation, Energy and Forestry. • EPA will be hosting a series of workshops for interested citizens and technical uses on the Chesapeake Bay Program Scenario Builder over the summer of 2011. This tool allows partners to assemble data "input decks" of various management actions and analyze nutrient and sediment reductions using the CBP Watershed Model. The intent of these workshops is for states and stakeholders to better understand how Scenario Builder works and help them to develop input decks for their Phase II WIPs.		